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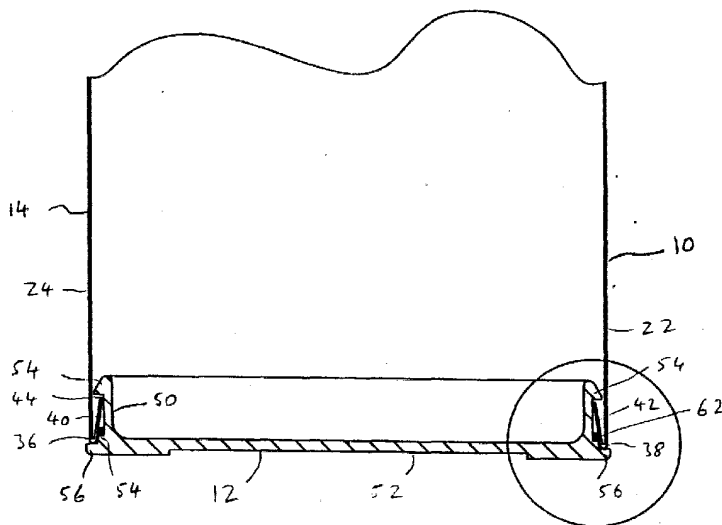
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(54) **Container with a plug and foldable flap**

(57) A container 10 includes a main body in the form of a sleeve 14 with a plug closure 12. Part of the plug 12 is arranged to be received in one end of the sleeve 14 to close that end of the sleeve 14. The sleeve 14 includes a plurality of folded retention flaps 40 at the end of the sleeve 14 receiving the plug 12. The plug 12 in-

cludes a circumferential projection 54 to contain the ends 4 of the folded retention flaps 40 and thereby prevent separation of the plug 12 from the sleeve 14. The flaps 40 are connected to a main panel 24 of the sleeve 14 through a fold line 36 which is strengthened by adhesive 62.

FIG 1



Description

[0001] The invention relates to a container.

[0002] According to the invention there is provided a container including a main body defining a opening, the container further including a closure for the opening, the main body including at least one folded flap at the opening, the closure defining at least one stop to contact the end of the flap and thereby prevent separation of the closure from the main body, wherein the or each flap is strengthened to inhibit migration of the fold.

[0003] In this way, force on the closure will be transferred through the stop to the flap. The force will be in the plane of the flap or have a major component in that plane enabling the flap to counter the force.

[0004] The or each flap may be strengthened by the addition of material to inhibit unscrolling of the folded flap. The material may be applied to the or each fold or adjacent the or each fold. The strengthening material may be a resin or other plastics material. In one embodiment, the strengthening material is an adhesive. In that case, the adhesive may adhere the or each flap to the closure and this forms a particularly strong construction. Also, there tends to be play between the closure and main body, in particular between the or each fold and stop, which can lead to undesirable, audible rattling, and this play is eliminated where the adhesive adheres the or each flap to the closure. Preferably, the adhesive is inflexible when set. The adhesive may caulk and seal the opening of the main body.

[0005] The closure may be made of any suitable material and may conveniently be made of plastics material.

[0006] The main body may take any suitable shape and is preferably tubular. The main body may be cylindrical. The main body may be made of any suitable material and may be made of carton board material.

[0007] The closure may take any suitable form and may consist of a tube of larger or smaller dimensions than the opening, and a web spanning the tube to close it.

[0008] The closure preferably also includes an abutment to abut the fold of the or each flap. The closure is thus retained against movement in either axial direction of the sleeve.

[0009] References to a "flap" and "the end of the or each flap" should not be taken to limit the construction to a flap bounded by free edges and arrangements in which there are extensions to the flap are within the scope of the invention.

[0010] An embodiment of the invention will now be described by way of example and with reference to the accompanying drawings, in which:

Figure 1 is an elevation in cross section of the lower part of a container of the embodiment of the invention;

Figure 2 is a detail of the Figure 1; and

Figure 3 is a plan view of the blank to form the sleeve of the embodiment.

[0011] The container (10) of the embodiment of the invention comprises a plug (12) which is received in the end of a tubular sleeve (14). Only one end of the container (10) is shown and the container includes a further closure (not shown) to close the other end of the sleeve in a readily operable manner. A suitable closure might be a push-in plug.

[0012] The sleeve (14) is formed from a blank (20) shown in Figure 3. The blank consists of a rectangular main panel (24). The main panel (24) includes a glue flap (28) forming one edge of the main panel 24. The lower edge of the main flap (24) is constituted by a fold line (36) connecting to a plurality of retention flaps (40). The retention flaps 40 are provided along almost the entire lower edge of the main flap 24 except for the glue flap 28. The retention flaps 40 are all identical. Each retention flap (40) tapers downwardly to its end edge (44) which is parallel to the fold line (36) so that the retention flaps (40) are trapezium shaped. The blank is erected by folding the retention flaps (40) about the fold line (36), placing glue on the glue flap (28), and curving the blank so that the glue flap (28) overlies the opposite edge of the main flap (24) to thereby adhere the edges of the main flap (24) together and form a cylindrical sleeve with the retention flap (40) folded inside it. The retention flaps (40) are relatively short circumferentially so that, in spite of the curvature of the fold line (36) through which they are connected to the sleeve (14) they project radially inwardly from the erect sleeve (14).

[0013] The plug (12) comprises a short cylindrical section (50), the lower end of the tubular section (50) being closed by a continuous web (52) spanning the end of the cylindrical section (50). At the upper end of the cylindrical section (50) is provided an outward circumferential projection (54) in the shape of a half-arrow head. The projection (54) thus defines a sloping run in surface (53) and a downwardly facing, horizontal, stop surface (55). At the lower end of the cylindrical section (50) are provided two circumferential, outward steps (54,56) defining upper and lower upwardly facing surfaces (58) and (60) respectively. The lower step (56) extends outwardly further than the projection (54).

[0014] In use, adhesive (62) is applied around the upper surface (58) of the upper step (54). The plug (12) is then pushed into the lower end of the sleeve (14). The retention flaps (40) will be pushed inwards by the projection (54) and will slide over its slanted run in surface (53). Just before the fold (36) of the sleeve (14) engages the upwardly facing surface (60) of the lower step (56), the end edges (44) of the retention flaps (40) will slide past the end of the sloping surface (53) of the projection (54) and, by resilience will move into the undercut behind the projection (62). The upwardly facing surface (60) of the lower step (56) forms a stop for the fold (36) and hence the sleeve (14). The adhesive (62) around

the upper step (54) will adhere the retention flaps (40) to the plug (12) at that position.

[0015] When the container (10) is used to hold a bottle or the like, the bottle will be received in the base (12) resting on the web (52) and when the sleeve (14) is lifted to raise the container (10) the force from the weight of the bottle inside the container (10) will be transferred through the adhesive (62) to the sleeve (14). If the adhesive (62) gives way, then the base (12) will drop relative to the sleeve (14) and the stop surface (55) will contact the ends (44) of the retention flaps (40). Due to the angle of contact the ends (44) of the retention flaps (40) will be jammed into the corner at the junction between the stop surface (50) and the outer wall of the cylindrical section (50). The force exerted on each retention flap (40) will be generally in the plane thereof. The adhesive retained on the flaps (40) will act to strengthen the fold (36) to inhibit unscrolling of the retention flaps (40).

[0016] In an alternative embodiment, the adhesive is not used and so the weight of the article contained within the container is always taken through the retention flaps (40).

[0017] In a further alternative embodiment, one or more further plies of carton board material are provided outside the sleeve (14) to strengthen the sleeve (14) and/or provide additional cosmetic benefits. In that case at least one further step may be provided on the base (12) to act as a stop for the additional plies.

[0018] The plug (12) may be made of plastics material and the sleeve (14) may be made of carton board material.

Claims

1. A container including a main body defining a opening, the container further including a closure for the opening, the main body including at least one folded flap at the opening, the closure defining at least one stop to contact the end of the flap and thereby prevent separation of the closure from the main body, wherein the or each flap is strengthened to inhibit migration of the fold.

2. A container as claimed in claim 1, wherein the or each flap is strengthened by the addition of material.

3. The container as claimed in claim 2, wherein the material is applied to the or each fold or adjacent the or each fold.

4. The container as claimed in claim 2 or claim 3, wherein the strengthening material is a resin or other plastics material.

5. The container as claimed in claim 2, 3 or 4, wherein

the strengthening material is an adhesive.

6. The container as claimed in 5, wherein the adhesive adheres the or each flap to the closure.

7. The container as claimed in claim 5 or claim 6, wherein the adhesive is inflexible when set.

8. The container as claimed in claim 5, 6 or 7, wherein the adhesive caulks and seals the opening of the main body.

9. The container as claimed in any preceding claim, wherein the closure is made of plastics material.

10. The container as claimed in any preceding claim, wherein the main body is tubular.

11. The container as claimed in claim 10, wherein the main body is cylindrical.

12. The container as claimed in any preceding claim, wherein the main body is made of carton board material.

13. The container as claimed in any preceding claim, wherein the closure consists of a tube of larger or smaller dimensions than the opening, and a web spanning the tube to close it.

14. The container as claimed in any preceding claim, wherein the closure includes an abutment to abut the fold of the or each flap.

FIG 1

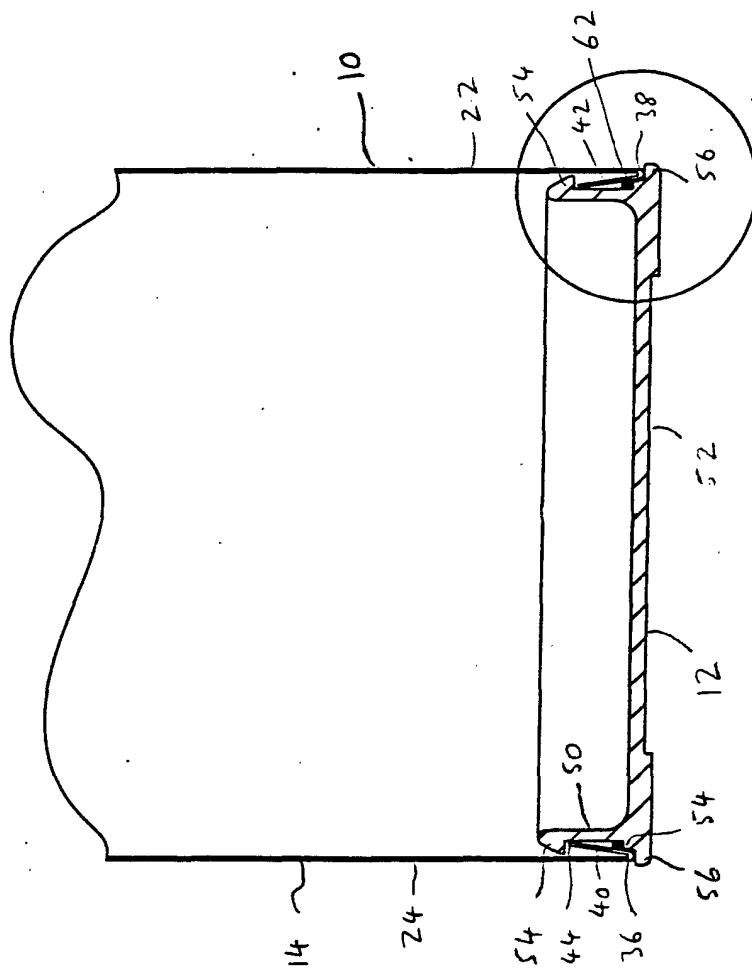


FIG 2

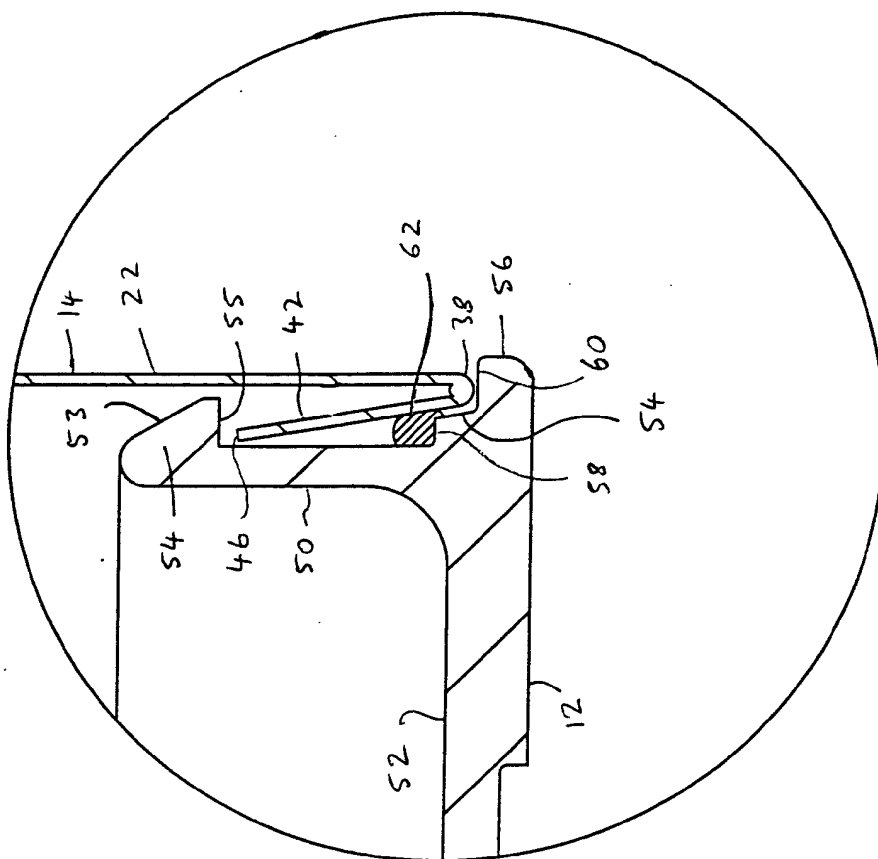


FIG 3

